

Malnutrition

Not enough food coming in (or the body cannot use it), so the body breaks down its own muscle and fat for fuel.

THE ONE-LINE TRUTH

The body is not getting enough fuel from food, so it starts eating itself to survive.

The chain — how it unfolds

1. The body breaks down its own muscle for fuel. — why: When food stops coming in, the body needs energy to keep the heart, brain, and lungs running. It starts burning fat and breaking down muscle protein into amino acids, which the liver turns into glucose (gluconeogenesis). This keeps blood sugar from crashing, but it slowly eats away the body's own tissue, so muscles shrink and the person gets weaker.
2. Weight drops and the person feels tired and weak all the time. — why: As muscle breaks down, the body loses the tissue that burns energy and does work. Less muscle means less strength and endurance, so even simple tasks like standing up, walking to the bathroom, or lifting a fork feel exhausting. Weight drops because fat and muscle are disappearing.
3. The immune system weakens, so infections happen more easily. — why: White blood cells (the immune system's soldiers) need protein and energy to grow, multiply, and patrol for germs. A starved body cannot make enough of these cells, so bacteria and viruses that the body would normally fight off (like pneumonia, UTIs, or skin infections) take hold and last longer.
4. Wounds heal slowly or not at all. — why: Healing a wound means building new skin and tissue, which is made of protein (especially collagen). A malnourished body does not have enough amino acids to make collagen fast enough, so cuts, surgical wounds, and pressure sores stay open and raw for weeks or months.
5. Pressure sores (bedsores) form on skin over bony spots. — why: When someone lies in bed or sits in a chair for hours, the weight of the body presses down on bony spots like the tailbone, heels, hips, and shoulder blades. This pressure squeezes the tiny blood vessels flat, so skin and tissue do not get oxygen. Normally the body repairs this tiny damage every time you shift position, but a starved body cannot repair fast enough, so the skin dies and forms open, painful sores.

6. Albumin drops and fluid leaks into tissues, causing swelling (edema). — why: Albumin is a protein made by the liver that floats in the blood and acts like a sponge, holding water inside blood vessels. When the body is starved, the liver does not have enough amino acids to make albumin, so blood albumin drops. Without albumin, water leaks out of blood vessels into the surrounding tissue, causing puffy swelling in the legs, belly, or lungs.
7. Refeeding syndrome can happen if you feed too fast. — why: When a starved person suddenly gets a lot of food (especially carbs or sugar), insulin surges and drives phosphorus, potassium, and magnesium from the blood into cells to process the food. Blood levels of these minerals drop dangerously low. Low phosphorus causes muscle weakness, confusion, seizures, and heart failure. Low potassium causes deadly heart rhythms. This can kill within days if not recognized and corrected.
8. Organs can start to fail if malnutrition goes on too long. — why: The heart, lungs, kidneys, and liver are made of muscle and tissue that need constant fuel to work. As the body runs out of stored energy and keeps breaking down its own tissue, these organs get weaker. The heart muscle shrinks and pumps less strongly (heart failure), the lungs cannot fight off pneumonia, the kidneys slow down, and the liver cannot make the proteins and clotting factors the body needs. At this point, even with treatment, recovery is slow and sometimes incomplete.

Spot it — what you see, and why

- Weight loss over time — you drop pounds without trying: Your body is not getting enough fuel (calories and nutrients) from food, so it starts breaking down its own stored fat and muscle to keep going — like burning furniture when you run out of firewood.
- Muscle wasting — arms and legs look thinner, you feel weak: Without enough protein coming in, the body dissolves its own muscle tissue to harvest amino acids (the building blocks of protein) for vital repairs — the muscles literally shrink because they are being used as spare parts.
- Low energy and constant tiredness: Cells run on glucose (sugar from food) and other nutrients. When you are not eating enough, your cells have less fuel to make ATP (the energy molecule every cell needs), so you feel drained — like a phone stuck at 10 percent battery.
- Swelling in the legs, feet, or belly (edema): The liver makes albumin (a key blood protein that holds water inside blood vessels). Without enough protein from food, albumin drops and water leaks out into the tissues, pooling in the legs and belly by gravity — like a weak sponge that can't hold water.

- Skin problems — dry, peeling, slow to heal, or bruises easily: Skin cells need vitamins (especially vitamin C, A, and zinc) and protein to renew and repair. Without them, the outer layer breaks down, wounds heal slowly, and blood vessels under the skin become fragile and leak (causing bruises).
- Hair loss or hair that pulls out easily: Hair follicles need a steady supply of protein and iron to build new hair strands. When the body is starved, it shuts down non-vital jobs like hair growth to save resources for the heart and brain — hair falls out or becomes thin and brittle.

Red flags — act now

- Sudden, large weight loss (more than 10 percent of body weight in 3–6 months) — the body is burning through reserves too fast and may soon fail to keep vital organs working
- Swelling in the belly or legs that keeps getting worse — a sign that the liver or heart may be struggling because protein levels are critically low
- Confusion, severe weakness, or inability to get out of bed — the brain and muscles are starving and shutting down; this is a medical emergency
- Repeated infections or wounds that will not heal — the immune system is too weak to fight off germs, and the body cannot repair itself

Treat it — in this order

1. Find and fix the upstream cause (not eating enough, cannot swallow, cannot absorb food, or burning calories too fast from illness) → Stops the broken step that started everything. Once food actually gets in and stays in, the body can start rebuilding muscle, fat, and strength.
2. Start feeding slowly at 50% of goal calories, then increase over 3 to 5 days (called cautious refeeding) → Prevents refeeding syndrome by letting the body adjust its electrolytes and metabolism gradually as food comes back in. Gets real nutrition in without shocking the system and causing heart rhythm problems or seizures.
3. Give phosphate, magnesium, potassium, and thiamine before or with the first feedings → Replaces the minerals and vitamins the starved body desperately needs to turn food into energy and rebuild cells. Thiamine especially prevents brain and nerve damage. Prevents refeeding syndrome.
4. Use mouth eating first, feeding tube (enteral) second, IV feeding (parenteral) only as last resort → Gets food into the body using the safest, most normal route. Mouth eating keeps the gut working, lowers infection risk, and is easiest to stop if problems happen. Feeding tubes work when swallowing is unsafe; IV feeding is riskiest and only for broken guts.

5. Work with a dietitian to build a meal plan and treat depression, food insecurity, or other reasons the person stopped eating → Fixes the human and social reasons the person ran out of food or stopped wanting to eat. Prevents malnutrition from happening again after discharge.

Your top priorities at the bedside

1. Check labs for phosphate, magnesium, potassium, and glucose before starting any feeding and monitor daily for three to five days — why: Refeeding syndrome (electrolyte shifts when malnourished cells start taking in glucose again) can drop phosphate below 2.5 and cause respiratory failure, heart arrhythmias (irregular heartbeat), and seizures within 72 hours of starting nutrition
2. Give thiamine 100 to 300 milligrams IV or by mouth, plus multivitamin with folate and other B vitamins, before or with the first feeding — why: Thiamine stores run out after three weeks of poor nutrition and giving carbohydrates without thiamine uses up the last bit in the body, triggering Wernicke encephalopathy (confusion, eye movement problems, walking trouble) or lactic acidosis (acid from oxygen-starved tissues) (too much acid in the blood)
3. Start nutrition at 50 percent of estimated calorie needs (usually 10 to 20 calories per kilogram per day) and increase slowly over three to five days if labs stay stable — why: Starting full feeding too fast in a starved body pulls phosphate and potassium into cells faster than we can replace them, causing refeeding syndrome; slow advancement lets us catch and fix electrolyte drops before dangerous levels happen